47. If a lottery is used to award MSS licenses, we propose to implement it in a manner similar to our proposed auction framework. That is, multiple frequency segments would be offered for a lottery, each with 2.0625 MHz of bandwidth in each transmission direction. All qualified pending applicants would be eligible for selection in each band segment. Further, we propose to limit each applicant to selection in four 2.0625 MHz paired band segments, for a total of 8.25 MHz of bandwidth in each transmission direction.[85] A selectee in more than 8.25 MHz of spectrum would be required to forfeit the extra segments. The band segment or segments to be relinquished will be left to the selectee's discretion. A new lottery for any relinquished segment will be repeated with the remaining applicants. We do not propose to award preferences to lottery applicants. Further, we question whether it may be advisable, as a means of encouraging additional entry, to permit applicants to agree to share spectrum. That is, if multiple licenses can be awarded for the same band segment, should we permit applicants to agree among themselves that they will implement co-frequency systems if one of them is chosen as the tentative selectee, allowing us to award licenses to all qualified applicants in the group? Further, how should we proceed if an applicant is awarded less spectrum than it needs or is awarded spectrum in a portion of the band that it cannot use? Should it be permitted to sell the unusable spectrum to another applicant or selectee? We request comment on all aspects of our proposed framework for a lottery.

B. Interservice Sharing

48. In proposing a co-primary allocation for MSS at 1610-1626.5/2483.5-2500 MHz, the Commission recognized that the MSS will be required to share these bands with other existing services. The 1610-1626.5 MHz band is allocated to the aeronautical radionavigation service on a co-primary basis, and a segment of the band at 1610.6-1613.8 MHz is allocated to the radio astronomy service on a co-primary basis. The 2483.5-2500 MHz band is authorized for co-primary use by the broadcast auxiliary service, by the terrestrial fixed-service, and by industrial, scientific and medical (ISM) equipment. Adjacent bands are allocated to the aeronautical radionavigation-satellite service, the instructional television fixed service (ITFS), and the multi-channel multi-

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[85] We recognize that Motorola's Iridium system, as designed, is capable of operating in only five of the eight uplink segments since only a portion of the 1.6 GHz MSS uplink band is allocated for bidirectional use.

point distribution (MMDS).[86] The Negotiated Rulemaking Committee, which was comprised of MSS applicants and representatives of most, but not all, affected services, extensively studied the issue of interservice sharing. We discuss the Committee's findings below.

1. Radio Astronomy Service:

49. The 1610.6-1613.8 MHz frequency band is allocated to the radio astronomy service (RAS) on a co-primary basis. The service also operates in the 4990-5000 MHz band on a primary basis. The RAS involves the reception of radio waves of cosmic origin,[87] and is responsible for a substantial portion of what has been learned about the universe in the last sixty years. Because the RAS involves only radio reception, it cannot interfere with other services operating in the same frequency band. However, because of its co-primary allocation, the RAS must be protected against unacceptable interference from other services. Achieving this protection is complicated by the nature of cosmic radiation emissions, which are similar to random noise emissions and have extremely low power flux density levels at the Earth. Further, there is a potential for both in-band and out-of-band interference.[88] Nevertheless, because radio astronomy observatories are usually located in remote areas and RAS operations are not always continuous, the Committee was able to reach an agreement by which sharing between MSS and RAS could be accomplished. The Committee's proposal, cooperatively developed by the MSS applicants and CORF,[89] establishes fixed

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[86] See 47 C.F.R. § 2.106. While no dedicated RDSS systems are operating, RDSS remains co-primary in the 1610-1626.5/2483.5-2500 MHz bands. Accordingly, we will leave the RDSS service rules contained in Section 25.141, 47 C.F.R. § 25.141, in place with the clarification that RDSS space station applicants must demonstrate that any proposed system is technically compatible with all authorized MSS Above 1 GHz systems. We further note that while the Commission has permitted interim RDSS operations in the 1610-1626.5 MHz band via packages on GTE Spacenet domestic fixed-satellites, these authorizations require the licensee to terminate transmissions when an MSS Above 1 GHz system licensee launches the first satellite in its system. See Newcomb Communications, Inc., 8 FCC Rcd 3631 (1993); Letter to Counsel, Mobile Data Communications, Inc. from Chief, Domestic Facilities Division (August 19, 1993).

[87] See International Radio Regulations RR 55 and 14.

[88] Out-of-band emissions are transmissions on a frequency or frequencies immediately outside the necessary bandwidth that result from the modulation process. This does not include spurious emissions, which may be reduced without affecting the corresponding transmission of information. See 47 C.F.R. § §2.1.

[89] The Committee on Radio Frequencies (CORF) operates under the auspices of the National Academy of Sciences and is responsible for advancing the interest of radio astronomy in the United States.

radius protection zones around the sixteen radio astronomy sites in the U.S. and sets technical requirements for MSS downlink transmissions.[90]

50. The Committee concluded that in-band interference from the MSS could be avoided by prohibiting Earth-to-space mobile terminal transmissions in the vicinity of RAS sites during times of observation.[91] In determining the necessary size of these zones, the Committee recognized that MSS terminals on-board aircraft could cause interference to RAS sites at distances much greater than land-based MSS terminals. The Committee also recognized that radio astronomy observatories using very long baseline arrays (VLBAs) could operatewith smaller protection zones than those not using VLBAs.[92] The Committee decided that when land-based MSS terminals are involved, fixed, circular protection zones with radii of 160 km and 50 km would generally provide adequate protection for non-VLBA sites and VLBA sites, respectively. The Committee further decided that when MSS terminals on aircraft are involved, protection zones would have to be based on line-of-sight distances. These recommendations are set forth in proposed rule section 25.213(a)(1).

51. The Committee also determined that MSS operations in the 1613.8-1626.5 MHz portion of the band could cause unacceptable out-of-band interference into RAS operations at 1610.6-1613.8 MHz. With respect to MSS uplink operations, the Committee recommended establishing fixed protection zones similar to, but smaller than, those recommended for in-band emissions. These zones would be based upon path loss calculations for each MSS system's relevant operating characteristics, such as frequency plan and out-of-band emission levels. Further, in order to take tropospheric scatter propagation into account, the Committee recommended that the licensees and CORF run model calculations into the 150- to 200-mile range, which is well over the radio horizon. With respect to secondary MSS downlink operations, the Committee made several recommendations. It proposed that downlink frequencies be restricted to a band whose lower edge is separated from the upper edge of the RAS band by a 2.2 MHz guard band, that the downlink emissions be controlled by filtering on

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[90] The Committee also decided that a beacon actuated protection system might provide an alternative to fixed radius protection zones. Under this system, a beacon would transmit a signal when RAS observations were in progress. Upon receipt of this signal, an MSS control center would automatically assign the MSS terminal to a communications channel outside of the shared MSS-RAS frequency band. The Committee concluded, however, that several theoretical and practical concerns must be addressed before a beacon system can be implemented.

[91] This is possible because the RDSS component of the proposed MSS systems allows the location of each mobile terminal to be determined and compared with the designated RAS protection zones.

[92] VLBA observatories use interconnected radio telescopes that are dispersed in widely separated locations. Due to the geographic separation of the telescopes, the chance of correlated interference from any single mobile earth terminal is small. Consequently, a smaller protection zone is possible for these observatories than for observatories using a single radio telescope. Eleven of the 16 radio astronomy sites in the U.S. are VLBA sites.

board the spacecraft and by selectively controlling the number of downlink channels used near the bottom of the band during RAS observations, and that a comprehensive program of analysis and testing be undertaken with the cooperation of the radio astronomy community. The Committee's recommendations are set forth in proposed rule section 25.213(a)(2). Further, in order to ensure that MSS stations can meet the requirements in proposed rule sections 25.213(a)(1) and (a)(2), our proposed rule also includes a requirement that MSS Above 1 GHz systems be capable of determining the position of user transceivers.

52. Finally, the Committee recognized that second harmonic spurious emissions from MSS downlink transmissions in the 2483.5-2500 MHz band could cause unacceptable interference to RAS operations in the 4990-5000 MHz band. It concluded that to protect RAS operations, MSS downlink out-of-band spectral power flux density (spfd) levels should be limited to -241 dB(W/m^2/Hz) in the 4990-5000 MHz band. The Committee noted that this level can be met through proper amplifier device selection and operating conditions in combination with post-amplifier filtering. This recommendation is contained in section 25.213(a)(3) of the proposed rules.

2. Aeronautical Radionavigation Service and Radionavigation-Satellite Service

53. The U.S. Global Positioning System (GPS) operates under the radionavigation-satellite (space-to-Earth) service allocation in the 1565.2-1585.6 MHz bands. GLONASS, the Russian Global Navigation Satellite System, operates under the same service allocation in the 1597-1610 MHz bands. The GLONASS system also operates in the aeronautical radionavigation service allocation in the 1610-1616 MHz band pursuant to International Radio Regulation RR 732.[93] GPS is a space-based positioning, velocity, and time system whose space segment, when fully operational, will be composed of 21 operational satellites in six orbital planes. The GLONASS system will include 21 operational satellites evenly distributed in three orbital planes. The user segment will consist of antennas and receiver-processors that can receive both GPS and GLONASS signals to provide positioning, velocity, and precise timing to the user.

54. Pursuant to international radio regulations, MSS stations may not cause harmful interference to or claim protection from stations operating under RR 732. These MSS stations are also subject to coordination under Resolution 46 (WARC-92). Further, RR 731F provides that MSS earth stations operating with MSS space stations cannot radiate an equivalent isotropically radiated power (e.i.r.p.) density greater than -15 dB(W/4kHz) in that portion of the band used by systems operating in accordance with RR 732.

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[93] RR 732 reserves the 1610-1626.5 MHz band on a worldwide basis for the use and development of air navigation and directly associated ground-based or satellite-borne facilities. It further provides that any satellite use of the band is subject to agreement obtained under the procedures set forth in Article 14 of the International Radio Regulations.

55. In the course of the Negotiated Rulemaking, the FAA indicated that the International Civil Aviation Organization (ICAO) and the U.S. civil aviation community have begun to develop a plan under which they will use GLONASS in conjunction with GPS to provide terminal communications and approach navigation to aircraft.[94] The FAA indicated that this combined system, the Global Navigation Satellite System (GNSS), is being considered by these groups as the sole long-term means of aeronautical radionavigation both internationally and in the United States.[95]

56. After extensive study, the Committee concluded that currently operating GLONASS receivers on high altitude aircraft could be protected against interference from MSS systems, but that such protection is not possible using existing technology if GLONASS is used for aircraft approach and terminal communications.[96] Indeed, the Committee asserted that if the aviation community's stated requirements are accepted, the co-primary MSS allocation at 1610-1616 MHz would be effectively nullified because of the disparity between aviation's protection requirements and the e.i.r.p. levels needed to support MSS uplinks. The Committee, which included representatives of the FAA and ARINC, suggested that GLONASS be reconfigured so that it would not operate above 1610 MHz. In the alternative, the Committee suggested that the U.S. GPS system and GPS alternatives be enhanced so that U.S. reliance on GLONASS could be lessened or eliminated.[97] The Committee also recommended that the Commission adopt the uplink e.i.r.p. density limit contained in RR 731E. According to the Committee, this limit is needed to allow the proposed MSS systems to be implemented, although it acknowledged that this limit will not assure protection for GLONASS if GLONASS is used as a component of a "sole means" GNSS.[98] Finally, the Committee recommended that to protect operations of GLONASS receivers and other

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94 The second generation GLONASS system, GLONASS-M, is operating in the 1596.9-1620.6 MHz bands, although it has not yet been successfully coordinated internationally. Rather, it has only been advance published for subsequent international coordination under the procedures of RR Article 14. We believe that we are obligated to protect those GLONASS-M operations in the 1610-1616 MHz band that were previously coordinated for the first-generation GLONASS. Approximately 40 countries, however, including the United States, have submitted comments or objections to the Radiocommunication Bureau (formerly IFRB) with respect to GLONASS-M. In view of this, the Committee agreed that it did not need to consider the potential interference from MSS into uncoordinated GLONASS-M operations.

95 See Committee Report at 15-16.

96 The Committee concluded that secondary MSS downlinks in the 1613.8-1626.5 MHz band would not create any insurmountable interference problems. Conversely, the Committee found that the only example of unacceptable interference from GLONASS into MSS occurred into CDMA uplink channels of geostationary MSS systems operating below 1616 MHz.

97 Committee Report at 19-20.

98 Committee Report at 44.

navigational avionics on-board aircraft, the Commission should prohibit MSS terminals from being used on civil aircraft unless the terminal has a direct physical connection to the aircraft Cabin Communication system.[99]

57. We have initiated both inter-agency and international negotiations regarding MSS and possible "enhanced" GLONASS operations in the 1610-1616 MHz band. We are encouraged that even if the FAA proceeds with its plans to use GLONASS for aircraft approach and terminal communications in the United States, the 1610-1616 MHz band will be available for MSS operations in the United States through a change in the GLONASS frequency plan.[100] The Committee's proposed rules regarding e.i.r.p. limits and limitations on the use of MSS terminals on aircraft fall within accepted international standards and are set forth for comment in proposed rule section 25.213(c).

58. In addition, the Committee found that out-of-band emissions by MSS uplinks in the 1610-1626.5 MHz band could potentially cause interference into GPS operations near 1575 MHz. The Committee stated that sharing was possible, however, if out-of-band emissions on MSS mobile units are constrained. The Committee's specific recommendations are set forth in proposed rule section 25.213(b).[101]

3. Terrestrial Services

59. Several terrestrial services are operating in portions of the frequency bands allocated for MSS or in adjacent bands. These are discussed below.

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[99] The Committee was not able to reach a consensus on out-of-band emission limits needed to protect GLONASS. Rather, it suggested a methodology that could be used to determine these limits, indicating that its suggestions may serve as a basis for further discussion. See Committee Report, Annex 2, Attachment B (Technical Report on MSS/RDSS Sharing with the Aeronautical Radionavigation and Radionavigation-Satellite Service), at 13. We request comment on the proposed methodology and on the appropriate parameters to be used in developing protection criteria.

[100] See, e.g., Letter from Larry Chesto, Chairman, SC-159, Requirements and Technical Concepts for Aviation, to Victor Kuranov, Deputy Director of Scientific Experimental Centre of ATC (June 2, 1993)(recognizing "uncertainty on the future of GLONASS"); Letter from Drs. Nicolay E. Ivanov and Vadim A. Salischev to Larry Chesto (Nov. 4, 1993)(recognizing GLONASS "experiences large difficulties in...coordination [with other primary services] in a bandwidth higher than 1610 MHz...which could probably lead to partial changes in [the] frequency plan of GLONASS.")

[101] The Commission is continuing to discuss the matter of out-of-band emissions from MSS systems to GPS operations with FAA, ARINC, and NTIA. We specifically invite these organizations to comment on our proposed rule.

a. Fixed services in the 2483.5-2500 MHz band

60. Over 700 fixed terrestrial stations, including temporary fixed (transportable) stations, are licensed and operating in the U.S. in the 2483.5-2500 MHz band. These stations are primarily used as links in microwave relay systems serving petroleum companies and as broadcast auxiliary links. Since 1985, however, the Commission has prohibited any further terrestrial licensing in this band.[102]

61. The Committee recognized that MSS spacecraft operating at power flux density (pfd) levels in excess of the levels prescribed by RR 2566 would be required to be coordinated with these "grandfathered" fixed terrestrial stations.[103] It stated, however, that these cases should be infrequent and that, in any event, any interference problems should be resolvable through coordination. The Committee conversely noted that terrestrial operations could interfere with MSS operations, although no analyses were provided to quantify the sharing constraints needed to prevent interference. The Committee stated that because there is no inherent reason why fixed services need to operate in this frequency band, the Commission should consider moving these fixed stations to a higher frequency band.

62. We accept the Committee's finding that interference problems between terrestrial fixed-services at 2483.5-2500 MHz and MSS downlinks operating in excess of the prescribed pfd levels may be settled through the coordination process.[104] We request comment on this assessment. We note, however, that the record was developed without a representative of affected terrestrial operators. We therefore cannot find at this time that the Committee's suggestion that over

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102 Report and Order, Gen. Docket 84-689, FCC 85-388 (released Sept. 13, 1985) (RDSS Allocation Order).

103 RR 2566 specifies pfd values at the Earth's surface that may be produced by space station emissions. The values vary from -152 to -142 dB (W/m^2/4 kHz) depending upon the angle of arrival.

104 See RDSS Allocation Order, note 102, supra, at paras. 18-20. In that Order, we recognized that fixed and temporary-fixed operations are unlikely to pose a serious interference threat to RDSS. We therefore grandfathered all existing station licenses as of July 25, 1985, permitting them to continue operations and subject only to license renewal. However, we acknowledged that coordination would be somewhat more difficult when temporary-fixed stations are involved since RDSS licensees would not have exact information regarding the location of these stations. We therefore required temporary-fixed licensees in this band to notify RDSS licensees directly whenever the station is moved to a new location. See 47 C.F.R. §94.61(b)(4). A similar interference environment is present with MSS operations. We therefore propose to modify Section 94.61(b)(4) to extend the notification requirement for grandfathered temporary-fixed licensees to MSS licensees as well. See also Allocation Order, note 1, supra (modifying NG 147 to the Table of Frequency Allocations, 47 C.F.R. § 2.106, to recognize that "grandfathered" terrestrial stations may continue to operate on a primary basis with the MSS.)

700 operating terrestrial facilities should be moved into different bands is in the public interest. Nevertheless, we may entertain such a proposal if it is supported by a fully developed record. To this end, we urge any parties requesting a relocation to provide a concrete analysis of the interference potential, the difficulties foreseen in the coordination process, specific frequency bands to which the terrestrial operators may be relocated, the estimated costs of a move, and an assessment of other less burdensome alternatives. Affected terrestrial operators will, of course, be given an opportunity to reply.

b. Fixed services above 2500 MHz

63. The instructional television fixed service (ITFS) and the multichannel multipoint distribution service (MMDS) operate in the adjacent 2500-2690 MHz frequency band. The Committee found a serious potential for out-of-band interference into MSS downlinks at 2483.5-2500 MHz from operations in the lowest frequency portion of the ITFS/MMDS allocation.[105] The Committee stated that because both ITFS and MMDS transmissions are similar to those of television broadcast signals, they will cause harmful interference into MSS mobile user transceivers operating up to several kilometers away from the ITFS or MMDS transmitter. The Committee concluded that stricter limits on ITFS and MMDS out-of-band emissions should be imposed, and recommended that the Commission initiate such a rulemaking.[106] The Committee acknowledged, however, that making these improvements would cost up to $30,000 per ITFS or MMDS station, and that this cost might increase if these stations are converted from analog to digital technology.

64. The record is not sufficient to allow us to make a specific proposal in this area. The most serious interference problem to MSS downlinks from out-of-band terrestrial fixed services appears to stem from ITFS operations in the adjacent 2500-2506 MHz band. Our records indicate that nearly 300 ITFS stations are licensed to operate in this band. No representative from the ITFS community participated on the Committee, however. Consequently, the record has not been fully developed with respect to ITFS/MSS interference cases, sharing

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105 The Committee found that out-of-band interference from MSS into these services was not a problem. It also found that the out-of-band interference potential between MSS and other services operating in adjacent bands, including the domestic broadcast auxiliary service, the broadcasting-satellite service, and the fixed-satellite service, was insignificant and, if any problems did arise, could be easily remedied through coordination. See Committee Report at 26-27, 46-47.

106 Specifically, the Committee concluded that out-of-band emissions from the lowest frequency ITFS/MMDS channel using an analog video signal at 2500-2506 MHz should be limited to -90 dB relative to the carrier at a frequency offset from band edge between 1.25 and 2 MHz, assuming that the channel is operating at 30 dBW e.i.r.p. Adjustments could be made for higher frequency channels and for higher or lower operating e.i.r.p.s. Currently, ITFS out-of-band emissions extending more than 1 MHz below the lower band edge must be attenuated 60 dB below the peak visual carrier power. See 47 C.F.R. § 74.936(b).

possibilities, and the economic and technical tradeoffs that must be considered in developing a viable solution.

65. Accordingly, we seek comment on all aspects of the ITFS/MSS sharing issue. Specifically, commenters should address the following questions and provide concrete analyses in support of their responses: What is the extent of out-of-band interference into MSS operations from ITFS operations at 2500-2506 MHz? What is the extent of the interference potential from operations above 2506 MHz? Under what distances and powers will harmful interference occur? Can MSS operators avoid harmful interference by not providing service in those areas surrounding ITFS transmitters? Can MSS operators avoid harmful interference if they do not operate in the higher frequency portion of the 2.4 GHz band? What are the technical and economic costs to MSS operators if the MSS was required to accept interference from out-of-band ITFS emissions? Should the MSS operators be given a choice of tolerating the interference or reimbursing the ITFS operators for the cost of improving suppression? Should the ITFS bear the burden of improving out-of-band suppression pursuant to Section 74.936 of the Commission's rules, which states that "should interference occur as a result of emissions outside the assigned channel, additional attenuation may be required."[107] What level of attenuation is needed to prevent interference? If additional attenuation were required, what costs would be incurred? Is there any way these costs could be reduced? Would a conversion from analog to digital ITFS technology facilitate ITFS/MSS sharing? Is such a conversion contemplated by ITFS operators? Would costs be reduced if suppression improvements were made during the conversion? Are there any other ways to facilitate ITFS and MSS sharing? What costs are involved in these alternatives? The regulations we ultimately adopt will be based on these comments and may require ITFS operators to improve out-of-band suppression, may require MSS operators to accept additional interference, or may require a combination of both.

c. Industrial, Scientific and Medical (ISM) emissions at 2400-2500 MHz

66. The 2400-2500 MHz band may be used on a co-primary basis for Industrial, Scientific, and Medical (ISM) applications. ISM applications include microwave ovens, door openers, high frequency lighting systems, industrial equipment, and other low-powered devices. The Committee was unable to reach consensus as to whether ISM use represents a significant interference problem to MSS downlinks at 2483.5-2500 MHz. Motorola argues that ISM devices will interfere with MSS reception in densely populated areas, where ISM use is concentrated. It concludes that it may not be possible to provide MSS in these areas.[108] In contrast, LQSS, TRW, Ellipsat, and Constellation question the

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107 47 C.F.R. § 74.936.

108 See Committee Report, Addendum 3, Interference Power Due to ISM Emitters in the 2483.5-2500 MHz Band, submitted by Motorola.

applicability of the study relied upon by Motorola and argue that several mitigating effects may reduce or eliminate interference in areas with high concentrations of ISM devices.[109]

67. The record has not been sufficiently developed to allow us to make a specific proposal in this area. Further, no representative of the ISM community participated on the Committee. We therefore request additional comment regarding MSS/ISM sharing. These comments should be supported by concrete technical analyses describing the interference potential, and any proposed solutions or recommendations. Commenters should also fully detail the costs involved in any proposal.

d. Other Terrestrial Services Provided Outside the United States

68. In sixteen countries throughout the world, the 1550-1645.5 MHz band is allocated on a primary basis to the fixed service pursuant to International Radio Regulation RR 730.[110] Ground-based aeronautical radionavigation services are also operating throughout the world in the 1610-1626.5 MHz band pursuant to RR 732. Any secondary MSS downlink operations in the 1613.8-1626.5 MHz band therefore may not cause harmful interference into any of these terrestrial operations nor can the user of an MSS receiver claim protection against harmful interference from these operations unless a particular country has agreed to provide this protection. Further, RR 731F requires that MSS downlink operations in the 1.6 GHz band be coordinated and notified pursuant to Resolution 46 (WARC-92).

69. Under RR 731E, MSS transmitters in the 1610-1626.5 MHz band must also operate on a non-interference basis with respect to terrestrial stations operating in accordance with RR 730 and RR 732. These MSS stations must also be coordinated and notified under Resolution 46 (WARC-92) and may not claim interference protection from these terrestrial stations.[111] We further note that all transmitting MSS subscriber terminals will be subject to the regulatory requirements of those countries in which they are operating. User countries will be responsible for undertaking all necessary coordination with neighboring countries to protect fixed or terrestrial aeronautical radionavigation operations in those neighboring countries.

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109 See Committee Report, Addendum 2, Sharing with Services other than ARNS and RAS, submitted by Loral Qualcomm, and supported by TRW, Ellipsat, and Constellation.

110 These countries are Austria, Bulgaria, Cameroon, Germany, Guinea, Hungary, Indonesia, Libya, Mali, Mongolia, Nigeria, Poland, Romania, Senegal, Czechoslovakia, and the former U.S.S.R.

111 RR 731E also provides that an MSS earth station may not produce an e.i.r.p. density in excess of -15 dB(W/4 kHz) in that part of the band used by ground-based or satellite-borne facilities operating in accordance with RR 732. This limit has already been incorporated in our rules in proposed section 25.213(c)(1). See para. 57, supra.

C. Feeder Links

70. In addition to the mobile links that have been the subject of the preceding discussion, one or more "gateway" or central earth stations are needed to complete the transmission paths, process the information being transmitted, and interconnect the mobile satellite system with other communications networks or with other user transceivers. Without these "feeder links," an MSS system would be useless. Because gateway stations are at fixed locations, the feeder link operates in frequency bands allocated to the fixed-satellite service.

71. The six applicants requested a variety of feeder link frequencies and bandwidths. Constellation, Ellipsat, and LQSS each requested 66 MHz of spectrum in each transmission direction in the 5/6 GHz bands, Motorola and TRW each requested approximately 100 MHz in each direction in the 20/30 GHz Ka-band, and AMSC requested an as yet undetermined amount of spectrum in the 12/14 GHz Ku-band.[112] The Committee examined these requirements in an attempt both to identify available frequencies and to evaluate sharing possibilities with existing and future users of the band.

1. LEO/GSO Sharing

72. Since the fixed-satellite frequencies to be used for LEO MSS feeder links may also be used by GSO satellites, the Committee studied the sharing potential between LEO and GSO satellites. The Committee concluded that while interference created by antenna beam coupling between GSO earth stations and LEO satellite stations was likely,[113] coupling statistics could be reduced as much as needed through a variety of coordination procedures. According to the Committee, a comprehensive set of balanced sharing principles and interference criteria could be established if warranted. The Committee acknowledged that if this technique proves too restrictive, it may require that other options be explored, including geographic exclusion zones and dedicated frequency allocations for LEO satellite feeder link use.

73. The Committee also conducted a comprehensive analysis of the obligations of the United States under international radio regulation RR 2613, and made several specific recommendations as to how the U.S. should interpret and apply the regulation. Radio Regulation 2613 imposes various coordination obligations on LEO operators with respect to GSO fixed-satellite systems operating in the same frequency band, essentially requiring LEO operators to cease operations when beam coupling between a LEO satellite and any GSO fixed-satellite results in unacceptable interference to the GSO system. To afford a LEO operator some protection against a demand from future FSS/GSO system

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112 Committee Report, Annex 3, Report of Working Group 3, at 2.

113 Given the orbits of LEO and GSO satellites, a LEO satellite will occasionally pass below a GSO satellite and into the transmission path of an earth station to the GSO satellite. When this occurs, the transmission beams from the LEO satellite and the earth station will intersect. If the LEO and GSO systems are operating in the same frequency band, this "coupling" will produce significant interference for very short durations of time.

operators that the LEO system cease operating or reduce transmissions, the Committee suggested that the U.S. seek international agreement that RR 2613 will not be invoked to require a LEO system to terminate operations unless: (1) the affected administrations reach agreement as to a level of "accepted interference," (2) the LEO system is operating in excess of these levels, and (3) the excess interference is caused by the LEO satellite's failure to maintain sufficient angular separation between the satellites.[114]

74. We accept the Committee's analysis that sharing among LEO feeder links and GSO systems is feasible with coordination. Nevertheless, because our experience in such coordinations is limited, we will not propose specific coordination methods or procedures at this time. Rather, as the Committee recommended, we propose only to codify a general obligation to coordinate in Part 25 of the Commission's rules, while deferring the codification of any specific requirements until, and if, the need arises. We expect that domestic coordination can be accomplished through the cooperative efforts of the operators. Further, we agree with the Committee's interpretation of RR 2613 and have already begun to explore, in international forums, issues relating to international coordination of and protection for LEO system feeder links.[115]

2. Specific Feeder Link Assignments

75. Three applicants proposed to implement feeder links in various portions of the 6425-6725 MHz and 5150-5216 MHz bands. The Committee determined that the uplink frequencies at 6 GHz were available and would not cause any undue coordination problems. However, the FAA opposed use of the corresponding 5 GHz downlink frequencies. The Committee noted that the FAA is in the process of developing and implementing new navigation aids within the National Airspace System in this band. These include differential GPS, Terminal Doppler Weather Radar and Automatic Dependent Surveillance (ADS). Although a detailed interference analysis could not be performed because these navigation systems are still in their conceptual stages, a preliminary review indicated a significant interference potential from GPS and ADS applications into LEO MSS feeder link downlinks. The Committee nevertheless recommended that the Commission identify and allocate a minimum of 66 MHz of spectrum below 15 GHz for MSS/RDSS feeder links.[116] The Committee further requested that if the Commission determines that the 5150-5250 MHz band is the only suitable downlink

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114 Committee Report at 29.

115 We recognize, however, that it does not appear feasible to seek to implement LEO feeder links in bands that are heavily used by GSO systems. Coordinating a LEO system with every GSO satellite throughout the world would simply be too burdensome.

116 Notwithstanding U.S. footnotes US245 and NG104 to the domestic table of frequency allocations (limiting FSS to inter-continental/international systems and subjecting FSS operations to a case-by-case electromagnetic compatibility analysis), the Committee suggested that 3600-3700 MHz and 10.95-11.20/11.45-11.70 GHz might be possible alternatives for space-to-Earth feeder link operations.

spectrum below 15 GHz, inter-agency discussions should be initiated to identify conditions that could allow sharing between MSS feeder links and the aeronautical radionavigation service. The Committee stated that if bands below 15 GHz are not found, several applicants will be faced with substantial system design and service concept modifications.

76. The Committee also evaluated the requests of two applicants for feeder links in the 18/20 GHz and 28/30 GHz bands. The Committee noted that the requested uplink frequencies at 28/30 GHz overlap frequencies being used or proposed for use by other services. Specifically, the 29.0-30.0 GHz band is being used for the Advanced Communications Technology Satellite (ACTS), NASA's FSS/MSS technology demonstration system, while the Commission proposed the 27.5-29.5 GHz band for the new local multipoint distribution service (LMDS). The Committee concluded that MSS feeder link and FSS/MSS operations such as ACTS would cause mutual interference, but that operational agreements and coordination should be able to resolve these problems.[117] It further concluded that LMDS transmissions, however, would cause unacceptable interference into MSS feeder link operations. The Committee noted that the corresponding downlink feeder link frequencies at 18/20 GHz also overlap with the fixed service and fixed-satellite service but that any potential interference problems should be resolvable through coordination.

77. In a related Notice of Proposed Rulemaking, we are proposing to conduct a Negotiated Rulemaking to assist us in assigning the 27.5-30.0 GHz frequency band.[118] We expect, in the context of that proceeding, to be able to identify sufficient spectrum within that band to satisfy the Earth-to-space feeder link requirements of all MSS Above 1 GHz applicants that may be licensed in this proceeding. Any identified uplink feeder link band segment will then be paired with corresponding downlink frequencies at 18.1-20.2 GHz. Further, we agree with the Committee that feeder links below 15 GHz, and particularly at 5 GHz, are an integral part of several applicants' system proposals and, if not available, would require significant design changes to these systems. Consequently, we will continue to pursue bands below 15 GHz for MSS Above 1 GHz feeder links. We are not prepared, however, to allow the uncertain availability of these bands to delay the licensing and implementation of MSS Above 1 GHz systems. To this end, we are placing applicants on notice that their desired bands may not be available and that they may be consequently required to modify their system design if they wish to go forward. Should the 5 GHz band or

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117 Given the broadband service offerings on ACTS, we question whether the interference problems would, in fact, be readily resolvable.

118 Rulemaking to Amend Part 1 and Part 21 of the Commission's Rules to Redesignate the 27.5-29.5 MHz Frequency Band and to Establish Rules and Policies for Local Multipoint Distribution Service, CC Docket No. 92-297, FCC 93-XXX (adopted Jan. 19, 1994) (LMDS Further Notice).

another band below 15 GHz[119] become available for MSS feeder links before licenses are issued in this proceeding, applicants will be given an opportunity to amend their applications to request operational authority in these new bands.

D. Intersatellite Links

78. Motorola's proposed system includes intersatellite transmission links in the 23.18-23.38 GHz band. This proposal falls within the intersatellite service allocation at 22.55-23.55 GHz. The Committee concluded that Motorola's use of this band would be compatible with other operations in the band, which include operations by NASA, the radio astronomy service, and fixed-terrestrial services. The Committee noted, however, that NASA has indicated it would prefer that any future MSS intersatellite links operate in the 24.45-24.75 GHz band, which recently was allocated internationally and domestically for intersatellite links.[120] Nevertheless, the Committee, which included a representative of NASA, proposed that we adopt a rule indicating that the 22.55-23.00 GHz, 23.00-23.55 GHz, 24.45-24.65 GHz, and 24.65-24.75 GHz frequencies are available for use by the intersatellite service. The Committee's recommended rule regarding intersatellite service frequencies, coordination with government agencies, and sharing criteria are set forth in proposed rule section 25.279.

F. Service Rules

1. Regulatory Classification

79. Section 332 of the Communications Act, 47 U.S.C § 332, was amended by the Budget Act to require generally that providers of "commercial mobile radio services" (CMRS) offer their services on a common carrier basis. Commercial mobile radio services are defined to include all mobile radio services that are provided for profit and that make interconnected service with the public switched network available to the public or to such classes of eligible users as to be effectively available to a substantial portion of the public.[121] The Conference Report indicates that the provision of space segment capacity directly to CMRS users must be treated as common carriage.[122] However, in Section 332(c)(5), the Act provides the Commission with the discretion to continue to determine whether the provision of space segment capacity to CMRS

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119 We would welcome any specific suggestions with respect to potential MSS feeder link bands below 15 GHz. All suggestions should be accompanied by a detailed analysis of the existing use of the band, the interference potential between MSS feeder links and existing services, and the estimated cost involved in implementing the proposal, e.g., modifying equipment or relocating users.

120 See Final Acts (WARC-92), note 15, supra; Allocation Order, note 1, supra.

121 47 U.S.C. § 332(d)(1).

122 H.R. Rep. No. 103-213, 103rd Congress, First Session, 494 (1993).

providers should be treated as common carriage.[123] The Commission is considering, in the context of a separate proceeding,[124] whether it will exercise this option.

80. We tentatively conclude that the MSS Above 1 GHz service may be offered as a commercial mobile radio service. The service probably will be offered for profit and will make interconnected service available to the public. We request comment on this tentative decision. Further, assuming, without deciding, that at least some MSS Above 1 GHz service offerings fall within the definition of CMRS,[125] and that the Commission will choose to exercise its discretion under Section 332(c)(5), we request comment on whether MSS Above 1 GHz space station licensees making satellite capacity available to CMRS providers should be required to operate as common carriers.[126] In the alternative, we request comment as to how we should regulate MSS Above 1 GHz space station operators if they are not offering CMRS. When making determinations regarding common carriage obligations in the past, the Commission has examined individual service proposals in light of the criteria delineated in National Association of Regulatory Utility Commissioners v. FCC, 525 F.2d 630, 642 (D.C. Cir.), cert. denied, 425 U.S. 999 (1976) (NARUC I).[127] The court in NARUC I identified two criteria as determinative of whether a service may be provided on a non-common carrier basis: (1) whether there is or should be any legal compulsion to serve the public indifferently, and (2) if not, whether there are reasons implicit in the nature of the service to expect an indifferent holding out to the eligible user public.

81. We therefore request comment regarding whether there may be any public interest reasons to impose a legal compulsion upon MSS Above 1 GHz space station operators to serve the public indifferently, even if an MSS Above 1 GHz

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123 47 U.S.C. § 332(c)(5).

124 Implementation of Title VI of the Omnibus Budget Reconciliation Act of 1993 - Regulatory Treatment of Mobile Services, 8 FCC Rcd 7988 (1993) (CMRS Rulemaking).

125 In determining whether a specific service offering constitiutes CMRS, we will evaluate the manner in which the service will be provided by the space segment licensee consistent with the approach adopted in the CMRS Rulemaking.

126 We also request comment on the appropriate regulatory provisions applicable to this service. In this regard, we note that the issue of forbearance from Title II regulation of domestic CMRS providers is now under consideration in the CMRS Rulemaking, id.

127 See, e.g., NVNG MSS Order, note 28, supra.

offering does not fall within the definition of CMRS.[128] Specifically, we would like comment on whether a decision to exempt space station operations from common carriage obligations will allow MSS Above 1 GHz licensees to engage in unreasonable or anticompetitive practices. Such an analysis should address the anticipated nature of MSS Above 1 GHz services, the likely availability of comparable services, and, if space station operators are not classified as common carriers, the possible need to impose license conditions pursuant to Titles 1 and 3 of the Act that will ensure non-discriminatory access to the space segment of these services. We recognize, however, that requiring common carriage operation may limit the amount of foreign participation in these inherently global systems, potentially impeding international coordination of these satellites. See 47 U.S.C. § 310(b). We request comment on the exent to which applicants are seeking foreign investment in their systems and whether, and the extent to which, a common carriage requirement may impact their plans. In light of NARUC I's second criterion, we seek comment regarding the likelihood that MSS Above 1 GHz space station capacity will inherently be offered as an indifferent holding out to the public.[129]

2. System License and License Term

82. MSS Above 1 GHz LEO systems involve constellations of technically identical satellites that may be launched and retired at different times. Rather than requiring each satellite to be licensed individually, we propose a "blanket" licensing approach for these systems such as the one used in the non-voice, non-geostationary (NVNG) LEO MSS.[130] Under this approach, applicants will be authorized to construct, launch and operate a system consisting of a

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[128] See, e.g., NVNG MSS Order, note 28, supra (because of competitive service alternatives, applicants afforded opportunity to offer service on either a common carrier or non-common carrier basis); Second Report and Order in Gen. Docket No. 84-1234, 2 FCC Rcd 485 (1987) (Upper L-Band MSS Order) (because only a single MSS license would be granted in the upper L-band frequencies and because MSS was a new and unprecedented service, the space segment operator was placed under an obligation to provide service on a common carrier basis).

[129] The LEO applicants propose to offer services on a non-common carrier basis to enable them to tailor their offerings to meet the needs of various customers. These individualized arrangements will be based upon, among other things, demand, usage amounts, length of commitment, and payment terms. See, e.g., Application of LQSS, at 14-15. The applicants assert that this degree of regulatory flexibility is needed to enable them to respond appropriately to the market environment for MSS Above 1 GHz service.

[130] See NVNG MSS Order, note 28, supra.

specified number of technically identical space stations.[131] The operating authority included in the license would begin to run on the date on which the first space station in the system begins transmissions and would be valid for a ten-year period.[132] The license would permit the licensee to replace both satellites lost during launch and older satellites retired before the end of the ten-year period with technically identical counterparts provided that the licensee certifies to the Commission, at least 30 days prior to launch, that the replacement station is technically identical to those authorized and that there is no net increase in the number of operating satellites. Requests for authority to construct additional or non-conforming LEO satellites would be treated as requests for license modification. We also propose to allow applicants and licensees to request authority to construct and launch a specified number of technically identical in-orbit spare satellites that would remain inactive until needed. Activation of these satellites would be permitted as required. Licensees would be required to certify to the Commission, within 10 days of bringing an in-orbit spare into operation, that activation of the satellite did not cause the licensee to exceed the total number of authorized operating space stations. Any additional or replacement satellites authorized within the ten-year system license term would be subsumed in the blanket license and, consequently, these authorizations would expire when the blanket license expires. These proposed rules are set forth in sections 25.143(a), (c), and (d).

83. As in the NVNG MSS, we also propose a filing window for system replacement applications.[133] Specifically, we propose that applications for next generation MSS Above 1 GHz systems be filed no earlier than three months prior to and no later than one month after the end of the seventh year of the existing system license. This will provide the Commission with ample time to act upon replacement system applications and the licensee with ample time to implement its next generation system.[134] The filing window will also provide notice of a licensee's plans. We request comment on this proposal, which is contained in proposed rule section 25.120(e).

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131 Before licenses are awarded in this service, applicants will be required to modify their pending applications for construction authority to request launch and operating authority as well. At that time, the applications may also be amended to conform to any final rules adopted in this proceeding. All applications requesting launch and operating authority must be accompanied by the appropriate filing fee.

132 This follows the single-step processing and licensing policy that has been used for satellites since 1980. See 1980 Assignment Order, 84 FCC 2d 584 (1981).

133 See NVNG MSS Order, note 28, supra; 47 C.F.R. § 25.120(e).

134 As in other satellite services, we will generally grant licensees the authority to implement replacement systems if the frequencies remain available for use by such systems. See, e.g., NVNG MSS Order, note 28, supra; 1988 Domsat Processing Order, note 27, supra, at n.31.

3. **Implementation Milestones**

84. Every satellite authorization issued by the Commission contains implementation milestones to ensure that licensees are building their systems in a timely manner and that the orbit-spectrum resource is not being held by licensees unable or unwilling to proceed with their plans.[135] Accordingly, we propose to adopt an implementation schedule for MSS Above 1 GHz LEO systems that is identical to the one adopted for the NVNG MSS. That is, we propose, as a general matter, that each licensee begin construction of the first two satellites of its system within one year of grant and begin construction of the remaining satellites within three years of grant. Construction of the first two satellites must be completed within four years of grant, and the entire system must be launched and operational within six years of grant. These deadlines will be included as conditions in the system license. We do not anticipate permitting any substantial deviation from this general time frame, especially with respect to commencement of construction. We will consider a slightly different completion schedule, however, if an applicant can concretely demonstrate that the size or complexity of its system warrants some additional time in which to complete construction of the system or to launch all the system's satellites. Failure to launch a sufficient number of satellites to meet our technical capacity or service requirements will render the system authorization null and void. Finally, to discourage speculators and to prevent unjust enrichment of those who do not implement systems, we propose to adopt a rule that prohibits trafficking in MSS Above 1 GHz licenses. Specifically, we propose, in section 25.143(g) of our proposed rules, to prohibit MSS Above 1 GHz licensees from selling a bare license for profit. We request comment on these proposals.

4. Reporting Requirements

85. As in the NVNG MSS, we propose to require MSS Above 1 GHz space station licensees to file annual reports describing the status of satellite construction, system utilization, and any outages or malfunctions on the system.[136] We also propose to require MSS Above 1 GHz licensees, within 10 days of each implementation milestone included in the license, to certify by affidavit to the Commission that the milestone has been met or to notify the Commission that it has not been met. As discussed, failure to meet a required milestone renders the system authorization null and void by its own terms. With respect to the construction commencement milestone, we have traditionally viewed the execution of a non-contingent construction contract as fulfilling

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135 Congress has also mandated that when competitive bidding is used, we impose performance requirements to prevent spectrum warehousing and to promote investment in and rapid deployment of new services. 47 U.S.C. § 309(j)(4)(B).

136 See 47 C.F.R. §25.210(j).

this milestone.[137] Thus, licensees' affidavits in this regard should certify that they have executed a non-contingent contract with their spacecraft manufacturer. We also believe it advisable to include in our rules language that allows us to require the submission of additional information, including copies of construction contracts, at our discretion. We request comment on these proposals, which are contained in proposed rule section 25.143(e).

5. Distress and Safety Communications

86. Although MSS Above 1 GHz applicants have not indicated that they plan to use their systems for extensive distress and safety communications, we have proposed that these systems have position determination capability,[138] and therefore have the potential to complement existing search and rescue (SAR) and disaster response services. Further, while MSS Above 1 GHz services cannot be used in lieu of distress beacons, such as emergency locator transmitters or emergency indicator radio beacons, that are required to be carried by international agreement or statute,[139] MSS Above 1 GHz system operators have certain obligations relating to maritime distress communications under Sections 321(b) and 359 of the Communications Act, 47 U.S.C. §§ 321(b), 359. Specifically, the Act requires licensees operating on U.S. territorial waters to give priority to radiocommunications or signals relating to ships in distress and to cease transmitting on frequencies that will interfere with distress signals. Further, it requires that stations on board ships must transmit to other ships in the vicinity and to authorities on land information concerning severe weather conditions or dangerous ice. The Act also prohibits licensees from charging a fee for the transmission of maritime distress calls and related traffic. Other than these mandated requirements in the Act, we do not propose to require that MSS Above 1 GHz systems provide search and rescue or disaster response communications as a general service offering. However, we expect that any satellite licensee that chooses to offer emergency or safety communications

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137 See, e.g., letters from Chief, Domestic Facilities Division to Hughes Communications Galaxy (June 7, 1990), to Alascom, Inc. (Feb. 16, 1990), to National Exchange Satellite, Inc. (Feb. 16, 1990), to Federal Express Corporation (Jan. 21, 1987), to Ford Aerospace Satellite Services Corporation (Oct. 2, 1986), to Hughes Communications Galaxy (Oct. 2, 1986), and to Satellite Transponder Leasing Corp. (Oct. 2, 1986).

138 See para. 51, supra.

139 Compulsory equipment carriage requirements are established in portions of the Commission's rules as well as by statute. See, e.g., 47 C.F.R. §§ 80.801, et seq.; Ch. IV, International Convention on the Safety of Life at Sea, 32 U.S.T. 47, T.I.A.S. 9700 (1974).

services will coordinate its effort with the appropriate search and rescue organizations.[140] These requirements are contained in proposed rule section 25.143(f).

6. Other Requirements

87. We request comment on whether any other service requirements should be imposed in the context of this proceeding. Should we, for example, require licensees to offer a specific percentage of its in-orbit system capacity to non-profit organizations for purposes such as environmental monitoring or education? Any such suggestions should be accompanied by an analysis of the utility of MSS Above 1 GHz system to provide these services and an analysis of the existing systems used to provide these services, including their costs.

G. Mobile Earth Station Licensing

88. We address here briefly the licensing procedures for the earth segment of the satellite system.[141] The ground segment will be comprised of central fixed-earth "gateway" stations operating in the feeder link frequency bands, mobile user transceiver units operating in the mobile satellite frequency bands, and tracking, telemetry, and command (TT&C) earth stations operating in either the feeder link or mobile service bands.[142] We propose to license gateway and TT&C stations as fixed-satellite earth stations under Part 25. Further, rather than requiring mobile user transceivers to be licensed individually, we propose a blanket licensing approach as is used in other mobile satellite services.[143] Under this approach, a service vendor, which may or may not be the space station licensee, would hold the authorization and responsibility for a specified number of technically identical transceiver units. Applicants requesting blanket licenses would be required to demonstrate that operation of the transceivers will not interfere with other authorized users of the spectrum. The license term for a blanket authorization would be ten years from the date of grant, and requests for authority to include

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[140] For example, the Interagency Committee on Search and Rescue (ICSAR) is composed of representatives from seven Federal Agencies, including the FCC, and has search and rescue responsibilities in the United States. Any satellite operator offering emergency services within the United States should establish coordination procedures with this organization. Similar procedures should be developed with all other domestic and international search and rescue organizations so that coordinated rescue operations can be quickly effected in the geographic area of concern.

[141] The June 2, 1991 filing deadline related only to space station applications to be considered in this processing round. We expect that a sizeable number of entities will apply for earth station licenses.

[142] We expect that given the limited MSS spectrum, most TT&C operations will occur in the feeder link frequency bands.

[143] See, e.g., NVNG MSS Order, note 28, supra; Upper L-Band MSS Order, note 127, supra; RDSS Licensing Order, note 43, supra.

additional units in the authorization would be treated as minor license modifications. Our proposals for earth station licensing and operations are set forth in sections 25.115(d)(applications for earth station authorizations), 25.130(b) (filing requirements for transmitting earth stations), 25.133(b) (period of construction; commencement of construction), 25.136 (operating provisions for earth station networks in the 1.6/2.4 GHz mobile-satellite service), and 25.213 (technical requirements for the 1.6/2.4 GHz mobile-satellite service). We request comment on these proposals.

89. Further, to help maintain an interference-free environment, we propose to require an end user to obtain the authorization of the space station operator, either directly or through an authorized vendor, before the user may transmit to that system. As in the NVNG MSS, we propose that once an end user has obtained authority to access a particular system, the operations of that particular user transceiver will fall under the blanket earth station license held by the space station operator or vendor. We believe that this approach will facilitate roaming by international users while still protecting the domestic electromagnetic environment.[144] The rules we propose today would not preclude bilateral, government-to-government discussions regarding international roaming arrangements with countries that license MSS Above 1 GHz systems. They also would permit roaming into the U.S. by users having technically compatible transceivers designed to operate with systems licensed in the United States. Once authorized to access a U.S.-licensed space station system, a roaming user's transceiver operations would be deemed to fall within the umbrella of the blanket earth station license held by the system operator or service vendor.

90. Finally, the regulatory treatment of earth station licensees will depend upon whether they will be providing commercial mobile radio services, although we expect that they will.[145] Earth station licensees that provide commercial mobile radio services must be regulated as common carriers.[146] We

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[144] As in the NVNG MSS, we anticipate that any subscriber transceiver being used abroad to operate with a U.S.-licensed system may be brought into the U.S. to operate with that system. Further, we urge other countries, as they license LEO satellite systems, to permit roaming into their countries by users having technically compatible transceivers.

[145] See para. 80, supra.

[146] 47 U.S.C. § 332 (c)(1). See discussion at para. 79, supra. In determining whether a specific service offering constitutes CMRS, we will evaluate the manner in which the service will be provided by the earth station licensee consistent with the approach adopted in the CMRS Rulemaking. The extent to which Title II tariff and other requirements will apply to common carrier MSS Above 1 GHz earth station licensees is being considered in a separate proceeding. See CMRS Rulemaking, note 124, supra.

are considering the general issue of what constitutes commercial mobile radio services, and the regulatory treatment to be afforded CMRS providers, in a separate proceeding. Our decisions there will be followed here.[147]

H. International Coordination

91. Non-geostationary mobile satellites will pass over all countries in their orbits around the world. Consequently, these systems will likely require global coordination. As in other satellite services, each MSS Above 1 GHz applicant and licensee will be required to provide the Commission with all information required for advance publication, coordination, and notification of frequency assignments pursuant to the international radio regulations and for consultation pursuant to Article 14 of the INTELSAT Agreement and Article 8 of the INMARSAT Convention.[148]

92. Furthermore, the International Telecommunication Union (ITU) has established a procedure governing the coordination of mobile satellite systems. That procedure assures that worldwide coordination is accomplished in a manner that requires both the administration proposing the system and the administration that is affected by the planned system to cooperate in resolving conflicts.[149] ITU Regulations do not, however, require a system to be successfully coordinated before it may be licensed.[150] We will follow the coordination procedures prescribed by the ITU and will work with the global community to promote mobile satellite services through the development of sharing techniques and the exploration of other technical issues. We also will continue to require United States licensees to meet both their international obligations and any national requirements imposed by other licensing administrations regarding operations within their territories. Consequently, all decisions relating to the implementation of 1.6/2.4 GHz mobile-satellite service within a country's territory will remain solely within that country's jurisdiction and control.

IV. CONCLUSION

93. In this Notice, we propose regulations that will allow the licensing and operation of competitive voice and data mobile-satellite service systems operating in the frequency bands above 1 GHz. This service has great potential

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147 See CMRS Rulemaking, id.

148 See 47 C.F.R. § 25.111(b).

149 ITU Resolution No. 46 (WARC - 92, Res. 46) states that "[a]ffected administrations, as well as the administration seeking coordination, shall make all possible mutual efforts to overcome the difficulties in a manner acceptable to the parties concerned."

150 Indeed, the regulations do not require that a system be successfully coordinated prior to launch, as long as the licensee operates on a non-interference basis with respect to authorized users. See International Radio Regulation (RR) 342.

to provide the United States public with a wide range of needed mobile voice services and to help stimulate the domestic economy as these multi-billion dollar systems are implemented in the United States and throughout the world. We request comment on the issues and proposals addressed in this Notice and encourage all interested parties to participate in the resolution of this matter.

V. PROCEDURAL MATTERS

A. Ex Parte Rules-Non-Restricted Proceeding

94. This is a non-restricted notice and comment rulemaking proceeding. Ex parte presentations are permitted, except during the Sunshine Agenda period, provided that they are disclosed in accordance with Commission rules. See generally 47 C.F.R. §§ 1.1202, 1.1203 and 1.1206(a).

B. Regulatory Flexibility

95. As required by Section 603 of the Regulatory Flexibility Act, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the expected impact on small entities of the proposals suggested in this document. The IRFA is set forth in Appendix B. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines as comments on the rest of the Notice, but they must have a separate and distinct heading designating them as responses to the Initial Regulatory Flexibility Analysis. The Secretary shall send a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration in accordance with paragraph 603(a) of the Regulatory Flexibility Act. Pub. L. No. 96-354, 94 Stat. 1164, 5 U.S.C. Section 601 et seq. (1981).

C. Comment Dates

96. Pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415 and 1.419, interested parties may file comments on or before May 5, 1994, and reply comments on or before June 6, 1994. To file formally in this proceeding, you must file an original and four copies of all comments, reply comments and supporting comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original plus nine copies. You should send your comments and reply comments to the Office of the Secretary, Federal Communications Commission, Washington, D.C. 20554. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center (Room 239), 1919 M Street, N.W., Washington, D.C. 20554. Copies of comments and reply comments are available through the Commission's duplicating contractor: International Transcription Service, Inc. (ITS, Inc.), 2100 M Street, N.W., Suite 140, Washington, D.C. 20037, (202) 857-3800.

VI. ORDERING CLAUSE

97. Accordingly, pursuant to authority contained in Sections 4(i) and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i) and 303(r), we hereby give notice of our intent to adopt the regulations and licensing policies set forth in Appendix A.

98. IT IS ORDERED that the Secretary shall send a copy of this Notice of Proposed Rulemaking to the Chief Counsel for Advocacy of the Small Business Administration in accordance with 5 U.S.C. § 601 et seq. (1981).

99. For further information regarding this Notice of Proposed Rulemaking, contact Fern Jarmulnek, Common Carrier Bureau, Domestic Facilities Division, (202) 634-1682.

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton

William F. Caton
Acting Secretary

APPENDIX A

Title 47 of the Code of Federal Regulations, Parts 2, 25 and 94, are amended as follows:

1. The Table of Contents for Part 25 is revised to read as follows: